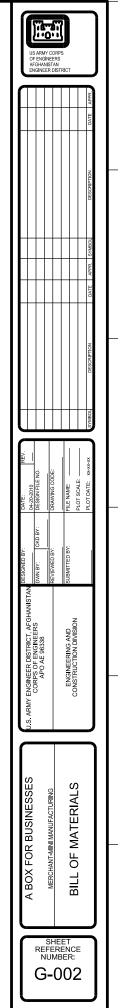


)F	MATERIA	ALS		
•		1.10	Building Des	ign
Ma	aterial		Merchant	
Co	ncrete_			
Vo	lume - cub	ic meters	180	
Re	<u>bar</u>			
Ler	ngth - mete			
	dia. 12mm		8,250	
	dia. 16mm		6,074	
	dia. 20mm		2,200	
	dia. 22mm	1	960	
CN	<u>1U wall</u>			
	ea - square	meters		
, 110	200mm sc		260	
		artial grout	220	
	(1200 O.C.			
To	of Wall C	<u>onnection</u>		
	Length of	angle 150x100x10	180	
	Number of di	a. 13mm exp. Bolts	280	
	Number of di	a. 16mm drill & epoxy bolts	280	
<u>Do</u>	ors & Wind			
		2200 w/ frame	7	
		900x2200 w/frme	0	
		x3600 overhead	4	
		x3000 overhead x3000 overhead	0	
	W-1 - 1000		12	
	VV-1 - 1000	JX 000	12	
Ro	ofing			
		d metal roof panels		
	square me		240	
	Cold form	ed metal framing		
	Lineal me	ters	800	
<u>Pai</u>	int (Liters)			
	Primer		77	
	(2) Finish	Coats	154	

			Building Des	ign
Ma	aterial		Merchant	
Ele	ctrical			
	Receptacl	es		
	Schuko style	16A UL/CE listed	12	
	Ceiling fa	ns		
	4 or 5 blade/	1320mm size fans	10	
	Load Distr	ibution Panel		
	380/220V, 50	Hz, 3ph, 4 wire	1	
		_		
	Manual tr	ansfer switch		
	3 pole, 100A	solid ground & ground bus	1	
		<u> </u>		
	Light swit			
	16A UL/CE lis	ted	8	
	Lights			
	Lights	20.000 (0.000) 2		
		00mm fluorescent fixure	20	
	w/ elect ball	ast, 2 lamps 32W	28	
	Lights			
		l allast & 2 lamps -32W	6	
	Linergency D	anast & 2 Idilips -32 W	U	
	Breakers	। (for distribution pane	2)	
	1 pole 20A br	•	14	
		main breaker	1	
	, , , , , , , , , , , , , , , , , , , ,	-	_	
	Wire (me	ters)		
	4mm sq/4mr	•	500	
	70mm sq/10		75	
	Conduit			
	20mm		500	
	50mm		75	
	Gounding	rods		
	Sized in acco	rdance w/solar package		
	and panel.		4	

		Building De	sign
Material		Merchant	
Solar po	wer package		
Packaged s	ystem to be sized		
and provide	ed by solar manufacturer	1	
		Includes the	e following equipment:
		DC/AC inve	rter (1)
		Array combi	iner (1)
		AC disconne	ect (1)
		Charge cont	roller (1)
		DC disconn	ect (1)
Solar arr	ay panels	(per size of	array required for load
Battery k	pank		
(sized b	y manufacturer to		
support	solar package)	1	
Plumbing			
Eastern 1	toilet fixure	2	



MERCHANT - MINI MANUFACTURING

Scope of Work

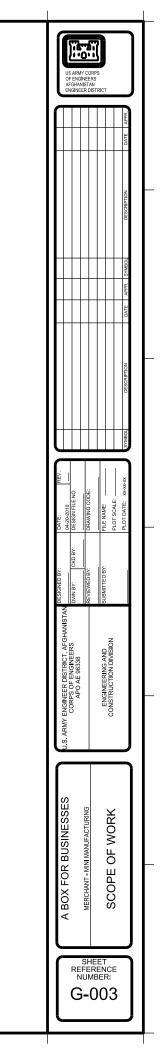
The project consists of a reinforced concrete frame building and foundation. The size of the building is 20.5M x 10.5M and has a gross square meter of 215. The column grid spacing is 5m on center in both directions. Concrete masonry units (CMU) 200mm fully grouted is infill between columns for the exterior wall and partial grouted CMU for interior walls. The roof construction consists of a level reinforced concrete slab on which sits cold form metal framing and corrugated metal roof panels sloped 2:12. The floor is a 200mm thick reinforced concrete slab-on –grade with a thickened slab at interior walls. The clear ceiling height is 4.2M.

The design provides for operable windows, doors and overhead coiling roll up doors. A mechanical room is accessible from the exterior and two (2) toilet rooms are provided with wash basin and eastern style toilet fixtures. The toilet room is vented via thru wall louver. Flue sleeves are provided for future installation of wood stoves. All exterior and interior surfaces are paint with one prime coat and two (2) finish coats.

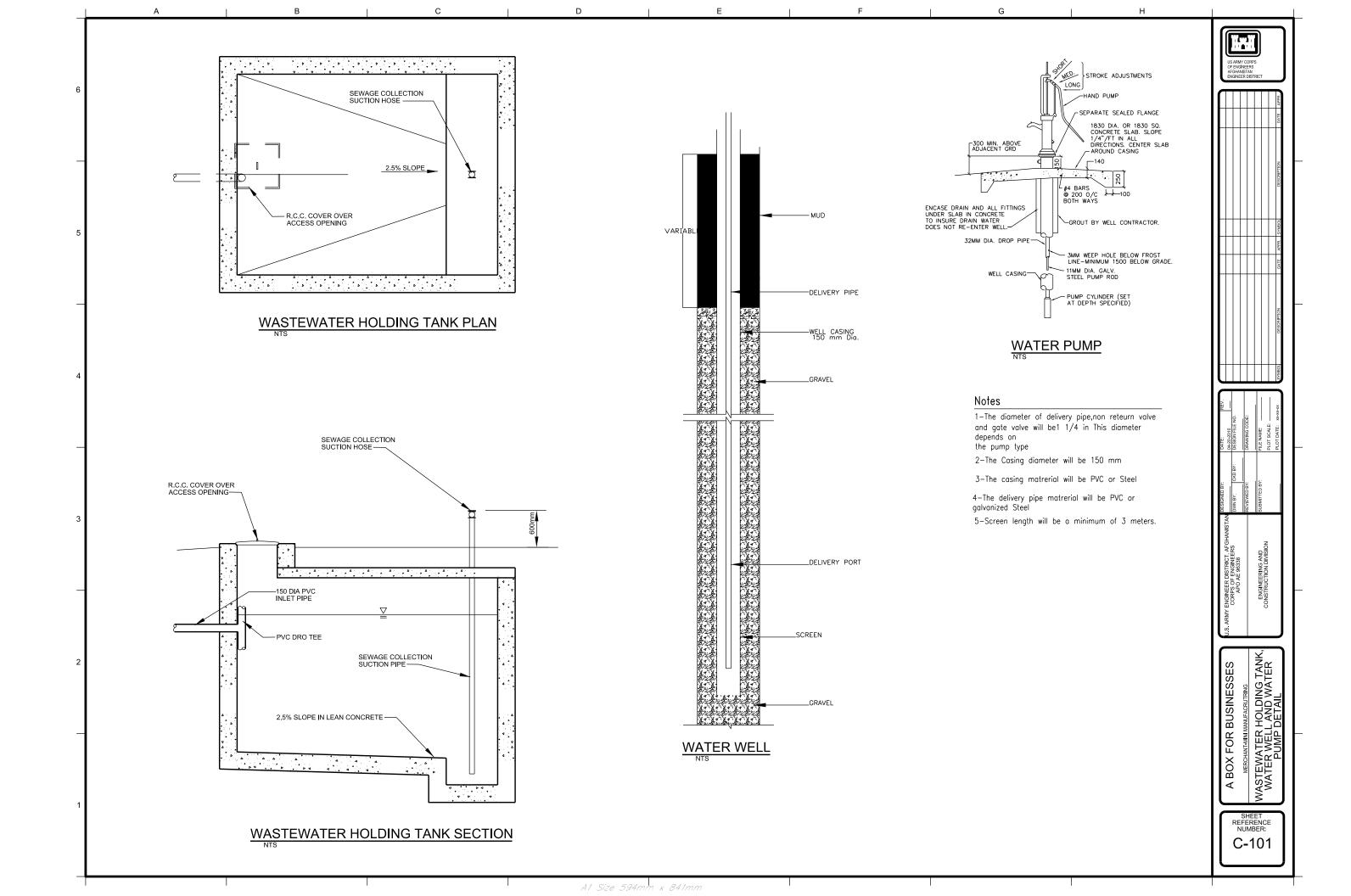
Demising partitions provide for 4 individual merchant shops with a rear entrance and overhead coiling roll-up door. The roof design is a shed roof, sloped 2:12 and provides a sign band above the each merchant shop.

Water is provided by an onsite water well and hand pump. Wastewater is collected and stored in a buried concrete holding tank where it is pumped out and processed off site.

Electrical power is distributed to general receptacles, lights and ceiling fans within the space. A panel is provided in the mechanical room for circuit distribution. Electrical power is provided to the facility by a photovoltaic solar energy package, including solar array panels on the roof, AC and DC disconnects, an inverter, etc. A manual transfer switch is provides the capability to tie in additional methods of power generation, i.e. generator, utility power grid, hydro, etc.



A1 Size 594mm x 841mm



GENERAL NOTES:

1 DESIGN REFERENCES

A. AMERICAN CONCRETE INSTITUTE (ACI) BUILDING CODE REINFORCED CONCRETE (ACI 318-05).

B. MASONRY STRUCTURAL DESIGN FOR BUILDINGS (TM-809-3).

2. DIMENSIONS PROVIDED IN SECTIONS OR DETAILS AND ON PLAN AND ELEVATION VIEWS ARE SHOWN USING MILLIMETERS UNLESS OTHERWISE NOTED. COORDINATE THESE SHEETS WITH THE ARCHITECTURAL, MECHANICAL,

3. ALL BUILDING ELEVATIONS ARE GIVEN AS REFERENCE ELEVATIONS TO THE FINISHED GROUND FLOOR ELEVATION. A REFERENCE FLOOR ELEVATION OF 0.000 IS USED FOR THE FINISHED GROUND FLOOR.

4. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AFFECTING THE WORK AT THE JOB

CONCRETE NOTES:

1. PROVIDE 20 MILLIMETER CHAMFER FOR ALL EXPOSED EDGES OF COLUMNS, BEAMS, WALLS AND ANY OTHER MEMBERS AS DIRECTED BY THE CONTRACTING OFFICER.

2. CONSTRUCTION JOINTS FOR STRUCTURAL SLABS, BEAMS AND GIRDERS SHALL BE LOCATED WITHIN THE MIDDLE THIRD OF THEIR SPAN. JOINTS IN GIRDERS SHALL BE OFFSET A MINIMUM DISTANCE OF TWO TIMES THE WIDTH OF AN INTERSECTING BEAM.

3. ALL REINFORCING BARS SHALL BE PLACED IN ACCORDANCE WITH ACI BUILDING CODE (ACI 318-05).

4. ALL REINFORCING BARS SHALL BE DEFORMED BILLET-STEEL CONFORMING TO ASTM A 615, REQUIREMENTS: MINIMUM GRADE 60, OR APPROVED EQUAL WITH THE FOLLOWING MINIMUM YIELD STRENGTH 413 MPa (60,000 PSI).

5. DIMENSIONS AND SPACING OF BARS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. THUS, Ø20 @ 300.

6. CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 28 MPa (4,000 PSI) AND SHALL CONTAIN ASTM C-150 TYPE I CEMENT UNLESS OTHERWISE NOTED. ALL CONCRETE SHALL HAVE A WATER-CEMENT RATIO OF 0.45. ENTRAIN AIR TO PRODUCE TOTAL AIR CONTENT ACCORDING TO THE SPECIFICATIONS FOR CONCRETE EXPOSED TO FREEZING TEMPERATURES (EXTERIOR FOOTINGS, SLAB TURNDOWNS, EXTERIOR SLABS AND SLABS-ON-GRADE, EXTERIOR WALLS, AND EXTERIOR GRADE BEAMS).

7. NO CALCIUM CHLORIDE SHALL BE USED IN ANY CONCRETE.

8 COLD-WEATHER PLACEMENT: COMPLY WITH ACE 306.1 AND AS FOLLOWS. PROTECT CONCRETE WORK FROM PHYSICAL DAMAGE OR REDUCED STRENGTH THAT COULD BE CAUSED BY FROST FREEZING ACTIONS, OR LOW TEMPERATURES. SUBMIT A COLD WEATHER CONCRETING PLAN FOR APPROVAL.

9. THE FIRST AND LAST BAR IN SLABS AND WALLS SHALL BE PLACED A MAXIMUM OF ONE-HALF OF THE BAR SPACING SHOWN UNLESS OTHERWISE NOTED.

10. THE CLEAR DISTANCE BETWEEN PARALLEL BARS IN A LAYER SHALL NOT BE LESS THAN THE NOMINAL DIAMETER OF THE BAR, NOR 33mm, THE CLEAR DISTANCE BETWEEN LONGITUDINAL BARS IN COLUMNS SHALL NOT BE LESS THAN 1.5 TIMES THE NOMINAL BAR DIAMETER NOR 40mm.

11. PROVIDE 1 - Ø12 REBAR IN MID-DEPTH OF SLAB AT ALL RE-ENTRANT CORNERS

ALL DESIGNS SHALL CONFORM TO THE PROVISIONS
RE OF THE IBC 2003 AND UFC AS APPLICABLE.

12. CLEAR CONCRETE COVER FOR REINFORCING BARS IN CAST-IN-PLACE CONCRETE SHALL BE PROVIDED AS FOLLOWS, UNLESS OTHERWISE NOTED: A. FOOTINGS OR BEAMS CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 75mm.

B. FORMED SURFACES EXPOSED TO WEATHER OR EARTH:

(1). Ø16 BARS OR SMALLER 40mm

(2). ALL OTHERS 50mm

C. FORMED SURFACES NOT EXPOSED DIRECTLY TO WEATHER OR EARTH:

(1). SLABS, WALLS 20mm

(2). BEAMS, GIRDERS, COLUMNS: PRINCIPAL REINFORCEMENT, TIES OR STIRRUPS

WIND LOAD (PER ASCE 7-02)

SEISMIC FORCE RESISTING SYSTEM = SPECIAL REINFORCED

SEISMIC ANALYTICAL PROCEDURE = EQUIVALENT LATERAL FORCE RESPONSE MODIFICATION FACTOR = 8

EQUIVALENT REINFORCING BAR SIZE CHART

FOUNDATION NOTES:

1. THE GEOTECHNICAL ANALYSIS FOR THIS PROJECT IS THE RESPONSIBILITY OF THE CONTRACTOR AWARDED THE WORK. AN ASSUMED ALLOWABLE SOIL BEARING CAPACITY OF 73.5 kPa (1,500 psf) HAS BEEN ASSUMED IN THE STRUCTURAL ANALYSIS OF THE BUILDING HEREIN AND SHALL BE CONFIRMED AND VERIFIED AS PART OF THE GEOTECHNICAL INVESTIGATION, VALUES WHICH DO NOT MEET THE REQUIREMENTS INDICATED ON THE BASIS OF DESIGN SHEET SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE CONTRACTING OFFICER FOR CONSIDERATION AND DETERMINATION OF THE NEXT APPROPROIATE COURSE OF ACTION.

2. NO FOOTINGS OR SLABS SHALL BE POURED INTO OR AGAINST SUBGRADE CONTAINING FREE WATER, FROST, ICE, OR LOOSE MATERIAL. FROST DEPTH ASSUMED TO BE 800mm.

3. PRIOR TO START OF FOUNDATION OR SLAB-ON-GRADE CONSTRUCTION, EXISTING SUBGRADES SHALL BE COMPACTED TO MINIMUM OF 95% MAXIMUM DRY DENSITY OBTAINED THROUGH ASTM D 1557 MODIFIED PROCTOR TESTING.

MASONRY NOTES:

BOND BEAMS SHALL BE PROVIDED IN BOTH EXTERIOR AND INTERIOR WALLS AT A MAXIMUM SPACING OF 1200mm AND/OR AS SHOWN. REINFORCE BOND BEAMS WITH 2 - Ø16 REBAR.

2. ALL CMU CELLS, OPEN CAVITIES, AND AIR SPACES OF ALL EXTERIOR WALLS SHALL BE FULLY GROUTED.

3. MASONRY CONSTRUCTION SHALL CONFORM TO SPECIFICATION FOR MASONRY STRUCTURES (ACI 530.1).

4. STRENGTH OF MASONRY MATERIEALS SHALL BE AS FOLLOWS:

A. CONCRETE MASONRY UNITS SHALL BE NORMAL WEIGHT. GRADE 1. CONFORMING TO ASTM C-90 AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 10.4 MPa ON THE NET AREA.

B. MORTAR SHALL CONFORM TO ASTM C-270 TYPE S.

C. GROUT FOR MASONRY SHALL BE NORMAL WEIGHT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 14 MPa AT 28 DAYS. GROUT SHALL CONFORM TO ASTM C-476M. GROUT LIFTS SHALL NOT EXCEED 1400mm.

SPLICES:

LOCATION OF SOME SPLICES ARE SHOWN ON DRAWINGS. SPLICES NOT SHOWN ON DRAWINGS SHALL BE IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS FOR DETAILING REINFORCEMENT AND AS APPROVED BY THE CONTRACTING OFFICER.

WHEN REINFORCEMENT OF DIFFERENT SIZE SPLICES, THE LAP LENGTH IS GOVERNED BY THE SMALLER BAR UNLESS NOTED OTHERWISE.

WALL AND SLAB REINFORCEMENT SPLICES ARE TO BE MADE SO THAT REQUIRED CLEARANCES ARE MAINTAINED

	TENSION LAP SPLICES							
AS (PROVIDED)	MAXIMUM % OF RE	MAXIMUM % OF REBARS SPLICED WITHIN REQ. LAP LENGTH						
	AS (REQUIRED)	50	100					
EQUAL TO OR	GREATER THAN 2	CLASS A	CLASS B					
	LESS THAN 2	CLASS B	CLASS B					

TENSION LAP SPLICE LENGTH SHALL BE AS FOLLOWS:

FOR CLASS "A" SPLICES 1.0 Id FOR CLASS "B" SPLICES 1.3 Id

WHERE Id IS THE BASIC TENSION DEVELOPMENT LENGTH.

BASIC TENSION DEVELOPMENT Id (mm) & TENSION DOWEL EMBEDMENT LENGTH

CONCRETE	BAR				Е	BAR S	IZE			
CONCILL	TYPE	#3	#4	#5	#6	#7	#8	#9	#10	#11
28 MPa	TOP BARS	400	500	600	700	800	1000	1200	1600	2000
(4.000 PSI)	OTHER	300	400	450	600	600	750	950	1200	1500

NOTES:

1 FOR BARS WITH CLEAR SPACING NOT LESS THAN 5X BAR DIAMETER AND WITH COVER FROM FACE OF MEMBER TO EDGE BARS, MEASURED IN THE PLANE OF THE BARS, NOT LESS THAN 2.5X BAR DIAMETER USE 0.8Id, BUT THE LAP SPLICE LENGTH SHALL NOT BE LESS THAN 300.

2. TOP BARS ARE HORIZONTAL AND INCLINED REINFORCING BARS SO PLACED THAT MORE THAN 300 OF CONCRETE IS CAST IN THE MEMBER BELOW THE BARS.

STANDARD COMPRESSION LAP SPLICE LENGTH (MM)

BAR SIZE	#3	#4	#5	#6	#7	#8	#9	#10	#11
SPLICE LENGTH	300	380	480	580	660	760	860	960	1070

BASIC COMPRESSION DEVELOPMENT (MM) & COMPRESSION DOWEL EMBEDMENT LENGTH

CONCRETE				В.	AR S	ΙZΕ			
28 MPa	#3	#4	#5	#6	#7	#8	#9	#10	#11
(4,000 PSI)	200	250	300	360	420	480	550	610	680

ALL BARS MARKED CONTINUOUS SHALL BE PROPERLY LAPPED AT SPLICES AND CORNERS AND HOOKED AT NON-CONTINUOUS ENDS.

STRUCTURAL DESIGN CRITERIA

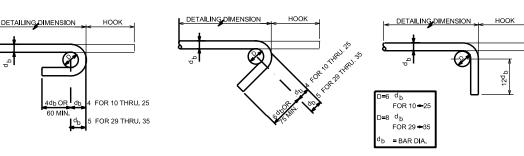
DESIGN LOADS

-- CALCULATED ---- REFER TO INDIVIDUAL SHEETS

1 (
	SEISMIC LOADS (PER IBC 2003)
	OCCUPANCY CATEGORY = I SEISMIC USE GROUP = I OCCUPANCY IMPORTANCE FACTOR = 1

SEISMIC SITE CLASS = D Ss = 1.28g S. = 0.51g SEISMIC DESIGN CATEGORY = D

ACI DESIGNATION	METRIC DIAMETER (MM)
#3	10
#4	14
#5	16
#6	20
#7	22
#8	25
#9	29
#10	32
#11	35



BAR BENDING DETAILS

ABBREVIATIONS

ADDED OR ADDITIONAL ABOVE FINISH FLOOR ARCH ARCHITECTURAL AT THE RATE OF REAM BRC BEARING воттом **BORBOT** CENTERI INF CONCRETE CONTROL JOINT CONSTRUCTION JOINT CJ CJT CAST-IN-PLACE

COL CONT COLUMN. CONTINUOUS DIA ORØ DIAMETER DIR DIRECTION EACH END EACH FACE OR ELEV **ELEVATION EACH SIDE EACH WAY EXPANSION JOINT** FAR FACE FDN FOUNDATION GRADE BEAM H OR HORZ HORIZONTAI HIGH POINT

ISOLATION JOINT KILOGRAMS PER SQUARE METER LG LONG

LOWER LAYER LOW POINT

MASONRY CONTROL JOINT MILLIMETERS MAXIMUM MECH **MECHANICAL** NEAR FACE NUMBER NO OR NOT TO SCALE ON CENTER OPENING PRECAST

PREMOLDED EXPANSION JOINT PI ATF POUNDS PER SQUARE FOOT

OPNG PC PEJ PL PSF PSI POUNDS PER SQUARE INCH RB REINF ROOF BEAM REINFORCEMENT REF REFERENCE REQ REQUIRED SCH SHT SCHEDULE SHEET SIMILAR STD SQ STANDARD SQUARE TIE BEAM T&B TOP AND BOTTOM TOP OF CONCRETE

TOP OF FOOTING TOS TOP OF SLAB OR TOP OF STEEL THICKENED SLAB TYP **TYPICAL**

UPPER LAYER UNO UNLESS NOTED OTHERWISE VFR1 WELDED WIRE FABRIC

WORKING POINT

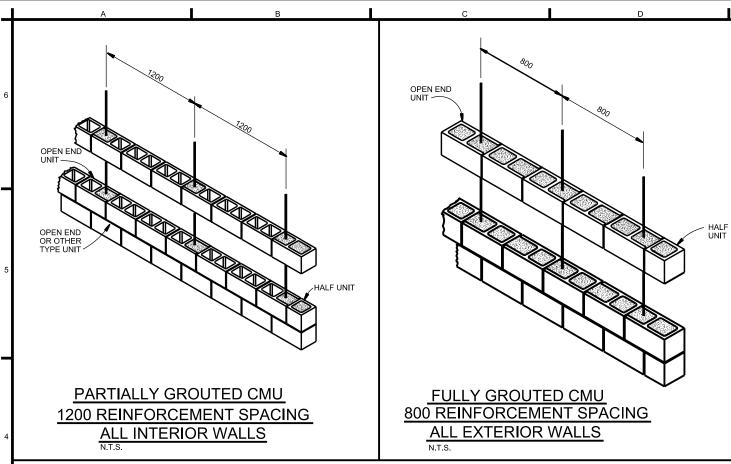
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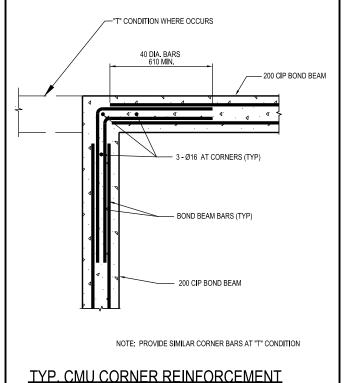
BUSI BOX

US Army Afghanist

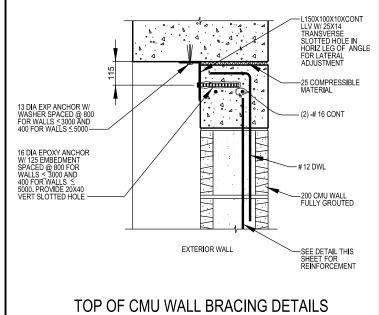
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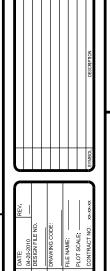
REFERENCE S-001





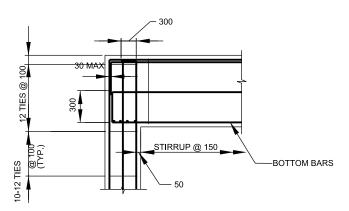
(BOND BEAM)

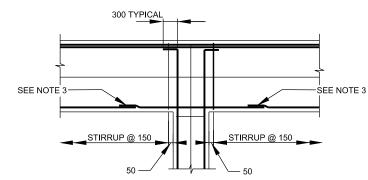




US Army Corps of Engineers Afghanistan Engineer District

3





STANDARD BEAM AND COLUMN DETAIL N.T.S.

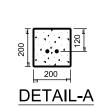
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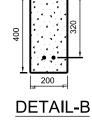
1. ALL LAP SPLICES IN BEAMS AND COLUMNS SHALL BE CLASS B SPLICES.

2. PROVIDE A 150 MAXIMUM OF STIRRUP SPACING AT LAP SPLICES AS SHOWN ON THE DRAWING. ALL SPLICES NOTED SHALL OCCUR AT MIDSPAN, REFER TO INDIVIDUAL BEAM DETAILS FOR STIRRUP SPACING.

3. THE LAP SPLICES SHOWN SHALL BE PERMITTED IN SPANS MEASURING 6 METERS OR MORE FROM CENTERLINES OF SUPPORTS (COLUMNS OR WALLS) ONLY. SPLICES INDICATED SHALL BE LOCATED ONE METER FROM THE FACE OF THE COLUMN, AS SHOWN.

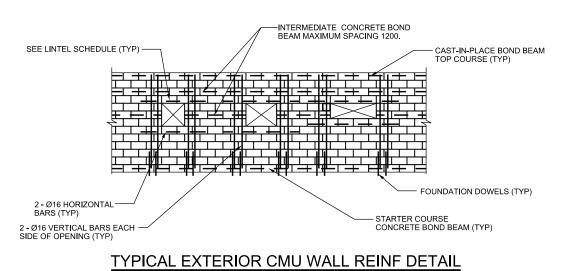
CAST-IN-PLACE LINTEL SCHEDULE							
OPENING WIDTH	NOMINAL SIZE	REBAR BOTTOM	DETAIL				
0-1800	200X200	2- 13 Ø	А				
1800-2000	200X200	2- 16 Ø	Α				
2000-2200	200X200	2- 19 Ø	А				
2200-4000	200X400	2- 13 Ø	В				
4000-4400	200X400	2- 16 Ø	В				
4400-4600	200X400	2- 19 Ø	В				





1. IN ADDITION TO THE VERTICAL REINFORCEMENT IDENTIFIED FOR PLACEMENT IN INTERIOR AND EXTERIOR WALLS, PROVIDE 1 - Ø16 REBAR ADJACENT TO SIDES OF WALL OPENINGS GREATER THAN ONE METER AND AT ABRUPT CHANGES IN WALL HEIGHT.

2. EXTEND REBAR FOR THE LINTEL A MINIMUM OF 600 BEYOND THE FACE OF OPENING.



S-002

BUSINESSES

A BOX FOR

SHEET REFERENCE NUMBER:

